SEPTEMBER 2005

Safety Smarts

Environmental, Health and Safety Group
City of Tempe – Water Utilities Department

Uncovering Chemical Inventory Dangers

Better inventory methods and MSDS management can increase safety.
by Mark Wysong

Inside

The other night, I was watching the blockbuster movie "Titanic." Seeing that iceberg break up the world's most un-sinkable ship, it occurred to me that it's life's dangers that you can't see that will get you in trouble.

This fact is driven home to me frequently, as a member of the Material Safety Data Sheet (MSDS) compliance and chemical management industry.

I am not talking about accidents where a chemical or gas is unwittingly spilled or ignited. I am talking about potentially hazardous situations that companies don't know they are perpetuating daily.

The "icebergs" that we see popping up in American industry with increasing frequency often have to do with chemical inventories that are seriously out of sync with companies' MSDS sets and are undetected through your central stores and purchasing systems. There are hidden hazardous products lurking out there. In short, we just don't know what's on our shelves!

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Disaster Preparedness

The tragedy that has unfolded in Louisiana and Mississippi brought to the forefront the need for personal disaster preparedness. Graphic images of the human suffering have made it very clear that not only government and industries need to plan and prepare, but so do each of us.

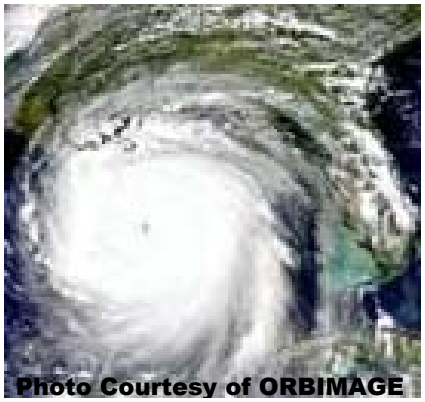

Photo Courtesy of ORBIMAGE

Living in the “Valley of the Sun” we are fortunate not to experience natural disasters in the magnitude of hurricanes or earthquakes.

So it is easy to understand how many of us become complacent and do not heed the advice to prepare for a disaster that seems so “unlikely”. However, just looking back at the headlines of 2004 we can see how close the “unlikely” came; rolling electrical blackouts, wildfires and a gasoline shortage. While these examples wane in comparison to the natural disasters that we have witnessed recently, they fact remains that if you have not taken some basic steps to prepare for the unlikely or unexpected, you could find yourself facing some very tough times.

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This is a Quarterly informational publication for City of Tempe employees. If you have comments or suggestions please contact the Environmental, Health and Safety Group.

EHS – Who Are We

Environmental, Health and Safety is a name that screams "regulatory" or "get the wallet out" because this is going to cost me. It is hard to change this impression when you take into account that OSHA regulations came about in the 1970's and many organizations both private and public first meet their EHS group after an OSHA inspection. As with most laws and regulations, it does not matter that an organization has been "doing it that way for years" or "did not know we were in violation," the law only cares about the safety of an organizations employees.

While EHS is not OSHA, the goal is the same, to ensure compliance with the numerous laws that apply to every City of Tempe employee. With that said lets break down Environmental, Health and Safety and see what or where we can assist or help you or your Department.

Environmental

Environmental responsibilities are limited to hazardous waste management, disposal and response. Thankfully, Tempe does not generate the volumes of waste a large manufacturing facility does, but we are still subject to the same laws. Regulatory agencies that can hold Tempe accountable for miss managed hazardous or universal waste include, the Environmental Protection Agency (EPA), Department of Transportation (DOT), Arizona Department of Environmental Quality (ADEQ) and the Arizona Department of Occupational Safety and Health (ADOSH). EHS not only handles the paperwork associated with hazardous waste, but will package it and have it disposed of appropriately. Failure to dispose of waste correctly or with unlicensed shippers has resulted in many well meaning businesses paying large monetary fines and in some cases, sending a surprised CEO to jail.

When a release of hazardous materials occurs, specially trained and equipped professionals from the Tempe Fire Department respond to stop the release. Once the release is stopped and public safety is assured EHS assumes the role of clean-up or mitigation. In many cases EHS can reduce the monetary cost of a clean-up by thousands of dollars that would typically be paid by the City. Response to unknown materials found or illegally disposed of hazardous waste in alleyways, parks and solid waste containers is just another function. Working closely with Tempe Fire Prevention, the responsible party is tracked down and restitution is sought.

Health

This is probably the most complex and expensive responsibility EHS administers. The scope is not what one would expect when hearing the word "health." In this case health means identification and remediation of health issues that effect employees and the public. Indoor air quality dealing with such issues as sick building syndrome, asbestos and mold are top priorities for EHS. Surprisingly something as simple as mold can result in expenditures ranging into the ten's of thousands of dollars to clean p and remove.

Safety

This word makes employees bristle and managers cringe. As if employees and managers do not have enough to do now days, they have to worry about compliance with safety regulations. Noise, personal protective equipment, respiratory, slip trips and falls are just the tip of the iceberg when it comes to compliance with safety regulations.

Assistance

Are you as a manager, supervisor or lead expected to know all the regulations that relate to Environmental, Health and Safety? Actually under the law, the answer is yes. This is where EHS can help by providing an EHS assessment identifying concerns and providing solutions. For an assessment or additional information please contact the Environmental, Health and Safety Section.

Uncovering Chemical Inventory Dangers *Continued*

Seeing Beneath the Tips of the Icebergs

OSHA estimates there are some 3 million U.S. businesses storing and using hazardous chemical products. All EH&S workers know that for each of these "regulated" products, there must be an easily obtainable MSDS available on site--in paper or electronic form--for his or her company to remain in compliance.

You would think that because everyone wants to protect their workers and wants to avoid dreaded government inspections and resulting fines, companies would know precisely what they have on their shelves at all times.

And you'd expect that these companies would keep their MSDS sets squeaky clean. Unfortunately, this is not the case for the vast majority of enterprise operations. Most companies are ignorant of their chemical inventory dangers. This is where I expect you to ask, "If the companies don't know what they have on their shelves, how do you discover these hidden dangers?" It's simple. New technologies are now acting like the marine radar and sonar systems that ships use to plot the size and location of icebergs that are invisible to the naked eye. Technology and new tools are coming to the rescue. Greater visibility into what is really on our industries' shelves is now being made possible to us through today's better electronic inventory methods that can plug directly into MSDS databases.

How the Dangers Start

To continue with our "Titanic" metaphor, often the reason chemical inventory threats pop up in industry in the first place is because of large numbers of products flowing in under U.S. companies' procurement radar/sonar screens. Don't get me wrong; I have the highest admiration for the professionalism and capabilities of American procurement departments. They do a great job of controlling large-ticket, large-volume chemical purchases. As case studies on the supply side of chemical management have shown, these same procurement people have realized big savings by reducing the number of their chemical vendors and getting these vendors to sell them less-toxic products. Everyone, including the safer worker, wins.

However, when indirectly purchased hazardous chemical inventories begin to build, the bad stuff most often slips under procurement's radar in "small" quantities--through endless use of site issued purchase cards (P-cards) or through local requisitions. I have seen scores of examples in the past two years of companies--across a broad range of verticals and a wide range of product holdings (from several hundred chemicals to tens of thousands)--where product-to-MSDS reconciliation was significantly out of sync.

Many companies, when they undergo a proper electronic-assisted inventory that is tied to the MSDS database, find they are anywhere from 50 percent to 85 percent out of compliance. That means that they have a chemical product on site for which they have no MSDS. Another scenario that isn't so much dangerous as costly is that many companies are also managing a significant number of MSDSs for products they do not have or are no longer using. According to an OSHA study, the average company spends close to $15 per MSDS to fully manage a hard-copy system every year. If you're managing paper MSDSs for products that you no longer have or use, you're wasting money. (Here, the first piece of advice is to automate your MSDS set.)

Better electronic inventory methods allow us greater visibility into what is really on our industries' shelves.

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Emergency Preparedness *Continued*


Courtesy of American Red Cross

When a natural or man-made disaster occurs, local resources including public safety, public works, water and electric utilities may become overwhelmed. This may result in an interruption of services. Typically, these services are restored or additional assistance is available within three days. However, the length of the interruption is determined by the type and magnitude of the disaster. In some instances you may have to evacuate your home, while in others you will not. Whether you stay put or go becomes a critical point in your preparation, especially when addressing special needs, such as families with infants, persons requiring prescription medications and even pets.

Furthermore, in our hectic and busy world a loss of telecommunications will eliminate your ability to contact friends, family and emergency services. Preplanning and discussing how or where you will contact each other or meet is extremely important.

The Basics

Start with the simple necessities; water and food. It is very likely that in natural or man-made disaster your electricity will be interrupted, foods that require refrigeration will spoil and become inedible quickly. Foods that are prepackaged like granola bars, breakfast bars, crackers and peanut butter make excellent choices when preparing a disaster kit. Canned food like tuna fish and fruits are also good choices, just remember to have can opener available that's not electric. When it comes to water, you should have one-gallon for each family member per day; this should be increased during our hot Valley summers. If you have a pool, water from it can be used to flush toilets but should not be used for human consumption.

The Comforts

In normal situations a flashlight or a battery operated radio would not be considered comfort items. However, without electricity the two become very valuable and necessary comforts. In disasters your portable, battery operated radio will be your only source of information during the disaster, keep some extra batteries on-hand. Remember, in a natural or man-made disaster open flames can be dangerous. Broken natural gas lines can leak and with emergency services such as the Fire Department overwhelmed or the lack of water to fight a fire, a flashlight makes a much better choice than open flame devices.

Special Needs

Determining special needs is dependant on those of your family. Items such as diapers, formula, prescription medications, feminine hygiene products, hand sanitizer and pet food should all be considered when making your preparations. Playing cards, board games, books, writing paper and writing instruments may be "special needs" to occupy time.

Putting it all together

The wrong time to put it together is at the time of the disaster. When preparing and putting together a disaster kit make sure you store it in a location that is safe and known by all family members. Plastic garbage cans or large plastic containers with lids make excellent storage units. However, it is important to remember that you may be faced with leaving your home and it may be difficult to manage these types of containers. It may be easier to use large duffle bags, back-packs or create a home kit and a "road" kit.

One common mistake made is thinking that you have all the items you need "somewhere" in the house so when it happens, I'll just bring them together or when I hear about it, I will go to the store and buy what I need. Natural or man-made disasters happen when least expected and when announced create panic, causing a rush on the "basic" items needed for survival.

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Uncovering Chemical Inventory Dangers *Continued*

Other problems we see among companies include unwittingly purchasing and using overlapping products with redundant functions. I have seen numerous situations where companies--across their enterprise--have bought and are storing in excess of 100 different brands of ammonias, solvents, and degreasers. These "redundant" products, though they may perform the same functions, can contain wildly differing compounds, some far more toxic than you would want. Often, in large, multi-site companies, there are far too many products that are being used at only one site with a huge variation in price point. This kind of uncontrolled buying, storage and use of chemicals is costly and potentially dangerous.

Breaking Up the Dangers

Obviously, your company wants to know precisely what chemicals you have, in what amounts, and in which locations. It makes no sense to pay to store, track, comply with, and dispose of compounds you don't need or shouldn't have.

The normal package required to conduct a proper electronic inventory of a site includes using a portable scanning gun attached to a tablet PC loaded with the inventory tracking software. Usually, data can be entered using the barcode scanner (for about 60 percent of the shelved brands--UPC, manufacturer, or other vendor codes), an attached keyboard, an on-screen keyboard, or a digital pen (for handwriting on the tablet screen). The time it takes to conduct such an inventory depends on the size of the operation, but generally speaking, 250 to 400 different products can be inventoried per day. To be truly effective, this data collection should be seamlessly integrated into your company's MSDS database through a chemical compliance software platform.

Benefits of this kind of accurate electronic chemical inventory management include that you will finally know what is truly in your inventory. You'll know the specific MSDS that will satisfy compliance. And if you don't have the MSDS either at the site, the location, or in your or your MSDS provider's master database, that MSDS can be requested from the chemical manufacturer.

Other benefits of electronic inventory taking are that you can know the exact quantities of each chemical you have (helpful for EPA reporting), the container types used for storage, how much product your company uses, and with what frequency the chemical is used.

Smooth Sailing Ahead

Getting a clear picture of your hazardous chemical inventory not only will help your company improve your compliance with regulatory rules, but it also will provide a wealth of information that can later form the basis for management decisions on storing, reducing, substituting, or eliminating dangerous substances.

Additionally, no serious chemical management efforts should neglect putting into place some kind of good, computer-enabled chemical request and approval process. After all, it makes no sense to break up the chemical inventory icebergs that have been floating around in your facilities if you are going to let them form again by allowing un-reconciled, uncontrolled hazardous materials back on your sites.

By gaining insight into product quantities, you can prevent product over-buying and duplication and improve inventory knowledge to help your company reduce its chemical vendor count. Using the information from your inventory and MSDS databases, you can consolidate suppliers and put purchases out to bid. With this type of physical inventory data, you can not only reduce costs on the procurement side, but also reduce your company's financial exposure by having an in-compliance MSDS database.

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Walking and Working Surfaces

Did you know that there is an OSHA standard for slips, trips and falls? 29 CFR 1910.21 to 1910.30, *Waking and Working Surfaces;* defines requirements that must be instituted to protect employees from hazards associated with falls in the work place. Slips, trips and falls account for the majority of general industry accidents, 15% of all fatalities, which is more than all other accidents with the exception of those caused by motor vehicles.

The title of the standard can be deceiving. Housekeeping is one of the most frequently cited violations defined in this standard. Cluttered work areas, walkways and wet floors are all addressed in this standard.

General Housekeeping

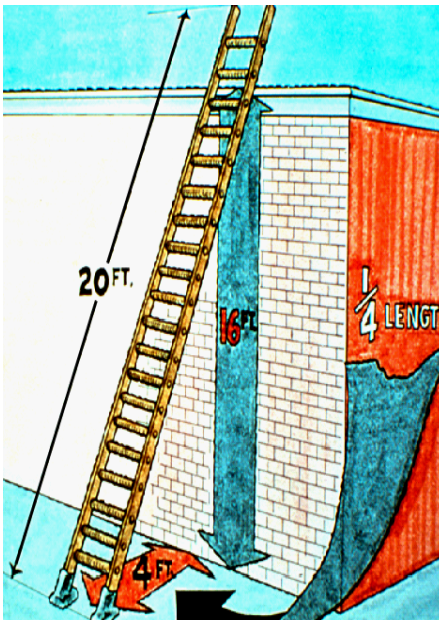
Workplaces must be maintained in a clean and sanitary condition. While this sounds like simple common sense, many work areas may actually be in violation of the standard. Every floor must be maintained in such a fashion as to facilitate easy cleaning, which equates to ensuring the floor is kept free of protruding nails, holes, splinters and loose flooring. In addition, walk ways must be clear of obstructions that could create hazards. One item typically overlooked in the workplace is the presence of food or drink in work areas where hazardous chemicals or operations are performed, which is a big no-no. Are you a pack, rat, and can't get rid of materials or chemicals because you never know when they might be needed? If you are storing paint or chemicals from that "1980's" project, you can almost be certain that they will be dried out, changed or no good. A simple rule to live by is, if it looks cluttered or dirty, it needs to be cleaned up or re-organized.

Covers and Guardrails

Covers and/or guardrails must be provided to protect workers from the hazards of open pits, tanks, vats, ditches, and similar openings. The standard defines what a floor opening and a floor hole is so proper protection can be put into place. A floor opening measures 12 inches or more in its least dimension in a floor, platform, pavement, or yard, through which persons may fall. Conversely a floor hole measures less than 12 inch but more than 1 inch in its least dimension, in a floor, platform, pavement or yard, through which materials but not persons may fall. So what does this mean, standard railing and toe boards must be in place to prevent employees and the public from falling or injuring someone else.

Portable Ladders

If you use a ladder, even a small step ladder, you must follow the rules established in the standard. An inspection before use is required and must be performed in accordance with the manufactures requirements (Owners Manual). Ladders should never be stored in an upright position and when they are determined to be defective should be taken out of service and tagged or marked "Dangerous, Do Not Use." Ladders used to gain access to a roof or other area must extend at least 3 feet above the point of support, no exceptions. Extension ladders must be used at an angle where the horizontal distance from the top support to the foot of the ladder is ¼ the working length of the ladder (length along ladder between the foot and top support). And you just thought you had to put the ladder up!



Summary

Scaffolding and fixed ladders are also covered by this standard. If you have questions, are not sure if the standard applies to you and need assistance finding manufacture requirements (Owners Manual), call EHS and we can help. For more information please visit our intranet site.

Household Hazardous Waste

By simple definition hazardous waste is any material that is corrosive, flammable, reactive or toxic which is capable of causing damage to living tissue or the environment. Regulatory agencies like OSHA, EPA or DOT all have very specific definitions and parameters that classify unwanted materials as hazardous. So what is the difference between a hazardous waste found in an industrial setting and the chemical waste you collect in your home? Typically, just the amount and in some cases the concentration. A household usually does not have a 55-gallon drum of isopropyl alcohol sitting around for personal use. But in every household chemicals that are just as dangerous as those found in industry are sitting under sinks, in medicine cabinets and in garages.

In the commercial and industrial workplace hazardous materials are required to have a Material Safety Data Sheet (MSDS). When these materials are discarded or contaminated, they get the "label" of hazardous waste and must be handled and disposed of accordance with federal and state laws. Hazardous waste generated by a household is exempt from these laws. That does not mean household hazardous waste is any less dangerous than its industrial counterpart, just harder to regulate.

The Dangers

Everyone has heard the stories of someone mixing bleach and ammonia together and generating a toxic gas cloud that resulted in their untimely death. The truth is most individuals have ticking time bombs stored under the sink, in the garage, or in the shed. When we leave the work environment the last thing anyone wants to do is read more labels, after all it cannot be that bad if the grocery or home improvement store stocks it on their shelves. A corrosive shower tile cleaner with low pH or pool acid will do the same permanent damage to your eye as any corrosive industrial chemical. Lantern or camping fuel has the same dislike for the open flame of a water heater as gasoline. The ill-advised placement of brake fluid over chlorine tabs or next to pool shock on a shelf can result in a spontaneous fire that can reach temperatures of

How do you know its Hazardous

Always read the label before using or storing any product. Look for signal words like caution, warning, poison and danger. Items with warning, danger and poison are almost always hazardous. It is surprising how many individuals who visit the Center admit to not reading the labels of materials they are disposing of. An example of not reading the label, throwing caution to the wind is those individuals who use paint removers containing methylene chloride. The label clearly states that the user must wear gloves and have proper ventilation or respiratory protection. Not reading the label has just exposed the user and anyone who may unwittingly be in close proximity to an increased risk of cancer, methylene chloride is a **known** carcinogen. Perfectly safe to use, if you read the label and follow directions.

What do I do with my Household Hazardous Waste (HHW)

Follow the directions for use and disposal on the label. If you live in Tempe, bring it to the Household Products Collection Center, otherwise contact the municipality where you reside for their recycling drop off dates and locations. Never pour unwanted household hazardous materials down the house drain, into the storm sewer or just out onto the ground, disposal in this manner will contaminate our groundwater, which hurts us all. (*For more information on household hazardous waste, contact David Tavares (350-2819) or Raymond Hagen (350-2818). Please visit our internet site at http://tempe.gov/hpcc/)*

Uncovering Chemical Inventory Dangers *Continued*

Through better chemical inventory methods and MSDS management, you can finally rid your shelves of products that are highly toxic and obsolete. From a safety standpoint, there is great benefit in cleaning the shelves of unneeded hazardous materials. Best of all, you'll have the knowledge that you are protecting your most valuable asset: your workers.

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Emergency Preparedness *Continued*

We all hope to never be caught in any type of disaster, natural or man-made, but we must be prepared in the event that tragedy does strike us. In all instances it is important to remember stay calm and follow your plan. Simple preparation and discussions with your family *before* a disaster occurs will not reduce the tragedy or pain but can ensure your survival.

Additional Information

There are numerous resources available to assist you in planning, preparation and purchase of preparedness kits. A few are listed below:

- Tempe Fire Department http://www.tempe.gov/fire/
- FEMA http://www.fema.gov/areyouready/
- Department Homeland Security http://www.ready.gov/
- Center for Disease Control http://www.bt.cdc.gov/
- American Red Cross http://www.redcross.org/
  (Kits and donations can be purchase at this site)

Need to get in touch with us...

The ***Environmental, Health and Safety Group*** is here to assist you in all your safety and hazardous materials needs.

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Visit our intranet site

http://www1.tempe.gov/hpcc